Atty. Dkt. No. 069796-1301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jörg Häussler et al.

Title: MULTI-LAYER FILM AND METHOD OF MAKING SAME

Appl. No.: 09/733,079

Filing Date: 12/11/2000

Examiner: Marc A. Patterson

Art Unit: 1772

DECLARATION UNDER RULE 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Dr. Jörg Häußler, declare as follows:

1. I am one of the inventors of the captioned application.

2. My work experience has been about 10 years. I have performed research in the field of science of materials, plastics and plastics processing.

3. I understand that the captioned application is presently rejected as being obvious in light of the Office Action dated February 1, 2006. I believe that the present invention is not obvious for the following reasons.

4. Prior to filing of the present application, one of ordinary skill in the art, as of the filing date of the present application, would not have been reasonably been able to predict that a multi-layered film would have had no yield point, even if some of the film layers did not posses a yield point.

The present invention relates to PVC free films with a comparable range of characteristics like the absence of the yield point. Therefore the films of the present invention can substitute PVC films and avoid the well known disadvantages of PVC films.

The working examples have in common that they all have random-co-polymers in one or more layers of the structure. The surprising fact was that these films do not have a yield point neither in MD nor in TD. This is an important fact to get a PVC like film.

Most of crystalline materials, like metals, show a yield point. Until the material reaches the yield point there is mainly elastic deformation in the material. Beyond the yield point the material will be plastically deformed. A further elongation of the material probe will not result in increased tensile stress; rather the tensile stress is reduced until the material fails. Until reaching the yield point only the amorphous areas of the polymer will be deformed. For partly crystalline polymers the crystalline areas have to be "activated" so that they can be deformed plastically. This may happen at the yield point.

Amorphous materials don't show a yield point. They have nearly no crystalline areas and therefore they cannot be activated. With further elongation of the material probe the tensile stress of the material probe will never reduce more.

Further more it is well know that some of the typical characteristics of plastic materials behave non-linear and in combination with the super-positioning principle of plastic materials, therefore, the prediction of characteristics is not obvious.

5. Moreover, for the following reasons, one of ordinary skill in the art would not have had a reasonable expectation of success of achieving a zero yield point by combing the teachings of US Patent No. 5,783,269 (Heilmann) and UK Patent Application No. 2,001,080 (Collette). As viewed by one of ordinary skill in the art at time of the filing date of the present application, the films of Heilmann have elastic properties, by blending polypropylene with SEBS (a typical rubber like elastic material) or the use of VLDPE in the multilayer films. The properties are produced by the combination of different materials to one blend (mixing but not a chemical changing). One of ordinary skill in art, at the time of the filing date of the present application would have expected that an elastic polypropylene of Heilmann would not have had a zero yield point and if Heilmann were to have been combined in a multiple layer with a polymer as disclosed by Collette, this would have also resulted in a film with lacking a zero yield point. In other words, one of ordinary skill in the art would have thought that polymers as disclosed by Heilmann, when combined with the polymers disclosed by Collete, would have resulted in a multilayer polymer film not having a zero yield point.

6. In the present specification, comparative examples 2, 3, 5, 9, 10, 11 and 14 have a yield point, while working examples 4, 6, 7, 8, 12, 13, 16, 17 and 18 have no yield point in the MD (machine direction) or the TD (traverse direction).

The examiner has opined that "....the film displays no measurable yield (no decrease in impact strength is measured in a drop test following sterilization at 121 degrees Celsius.....)". Comparative examples 2 and 5 of the present specification fall within the teachings of Heilmann. Comparative example 2 relates to a coextruded blow-film and comparative example 5 relates to a cast film.

The materials used for the inner layer of these comparative examples are as follows:

- PPC2 = PP13M10cs264 = polypropylene random copolymer,
- TPE2 = Kraton G1657 = linear styrene (ethylene-butylene)-styrene-block copolymer
- TPE3 = Tuftec H 1085L = hydrogenated styrene butadiene block copolymer;

for the middle layer:

- PPC2 = PP13M10cs264 = polypropylene random copolymer,
- TPE2 = Kraton G1657 = linear styrene (ethylene-butylene)-styrene-block copolymer

- TPE3 = Tuftec H 1085L = hydrogenated styrene butadiene block copolymer;
for the outer layer:
- PPH1 = 41E4cs278 = polypropylene homopolymer,
- TPE3 = Tuftec H 1085L = hydrogenated styrene butadiene block copolymer;

These films fulfill all the criteria of Heilmann et al., however, as can be seen from the Table 3 which gives the results of properties for the sterilized films of the invention and the sterilized comparative films the blown-film of Comparative Example 2 (which is in accordance with Heilmann et al.) shows a yield point in MD while the cast film of Comparative Example 5 (which is in accordance with Heilmann et al.) shows a yield point in both, the MD and TD. All of the other comparative examples show also a yield at least in one of the two directions MD and/or TD. Therefore, the present invention represents an unexpected improvement over the mechanical properties disclosed by Heilmann et al. as can be seen from the drop test and pressure sleeve test.

7. Therefore, in light Items 5 and 6 as noted above, one of ordinary skill in the art, as of the filing date of the present application, would have viewed the absence of a yield point of the claimed invention as an unexpected property.

8. In addition, one of ordinary skill in the art, as of the filing date of the present application, would have viewed property yield point of the present invention as an unexpected property.

9. I believe that one of ordinary skill in the art, as of the filing date of the present application, would not have selected the elastomeric polypropylene polymers of Collette for combination with the Heilmann for the following reasons. The polymers disclosed by Collette were special for the following reasons.

10. Heilmann states the following at column 5, lines 23-35:

> Materials which may be considered for the outer layer are polymers or polymer mixtures familiar to the person skilled in the art having a softening temperature which is higher than that of the polymers or polymer mixtures of the other layers or is equal to the softening temperature of the polymer or polymer mixtures of the supporting layer(s).
>
> These preferably included polypropylene homopolymers, polypropylene block copolymers, polypropylene random copolymers with a low to moderate ethylene content and/or high density polyethylene (HDPE). Polypropylene random copolymers are particularly preferred. The stated polymers may be used alone or as mixtures or blends.

In light of this disclosure, one of ordinary skill in the art would have been motivated to select in polypropylene random copolymers, which are different than the elastomeric polypropylene polymers of Collette because of the chemical structure. Moreover polypropylene

homopolymers and polypropylene block copolymers are different than the elastomeric polypropylene polymers of Collette because of the chemical structure. Therefore, one of skill in the art would not have been motivated to combine Heilmann with Collette.

11. I hereby declare that all the statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements are so made punishable by fine or imprisonment, or both, under Section 101 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

31. July 06
Date

Dr. Jörg Häußler